



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of) Group Art Unit: 1771
)
Daniel H. Katsin) Examiner: Befumo, Jenna Leigh
)
Application No. 10/672,978) **RULE 132 DECLARATION OF DR.**
) **DONALD B. THOMPSON CONCERNING**
) **COMPARATIVE TESTING**
Filing Date: September 27, 2003)

For: ENGINEERED TOWELING)
_____)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

CERTIFICATE OF MAILING UNDER 37 CFR 1.8

I hereby certify that this correspondence is being mailed to the
Patent and Trademark Office on this date Jan 29, 2007
addressed to: Commissioner for Patents, PO Box 1450,
Alexandria, VA 22313-1450.

By: Fern Marder
Fern Marder

1. I am a Professor in the College of Textiles at North Carolina State University. My Curriculum Vitae is attached hereto as Exhibit A. I have participated in testing concerning certain materials that are relevant to the above-captioned patent application. Another member of the College of Textiles faculty, Dr. B.S. Gupta was also involved in the experiments and analyses reported here. Dr. Gupta's Curriculum Vitae is attached hereto as Exhibit B.

2. The testing performed at the North Carolina State University College of Textiles closely examined the structure of the split PET/nylon microfiber used to make the yarns and fabrics used by Tactix Toweling (assignee of the present patent application) to make an absorbent wipe. The new material was compared to similar PET and PET/nylon control yarns for differences in fine structure, using Scanning Electron Microscopy and other laboratory techniques.

BEST AVAILABLE COPY

3. One comparison yarn was a PET yarn. It was found to be a relatively fine yarn of approximately 10 microns (0.000010 m) in diameter. The yarn was PET found to be 156 grams/denier, or about 3.8 grams/denier/filament.

4. The second comparison yarn was the PET/nylon with a linear density of 98.2 grams/denier. The PET/nylon blend yarn was about 0.000014 m in diameter, and the fibers were about 9 grams/denier/filament.

5. The two comparison yarns were of a construction and shape that would provide good comparisons for the new yarn. The materials were similar (the blend is about 75% by weight PET) and the unsplit blend composition was the same as that of the split PET/nylon blend. The deniers of individual fibers in the split yarn varied significantly, due to the irregular shapes, and the many distortions produced by the mechanical separation process. The split fibers may be estimated to vary from about 2 dpf to 7 or 8 dpf.

6. There have been many investigations of factors that may influence the sorption capacity and transport rate for water moving through fabrics. For many years, it had been believed that the sorption of water into the fiber was the most important characteristic that would promote movement of water through fabrics. While the ability to absorb water into a fiber can provide high absorption capacities, the water can be held tenaciously, making it difficult to remove moisture by drying/evaporation or by wringing/squeezing out moisture (1)(A listing of the cited references is attached hereto as Exhibit C.)

7. It has become apparent in recent years that the fiber, yarn and fabric structure can be a very valuable tool in creating structures that have rapid water uptake and high capacities. Although polypropylene (PP) and polyester (PET) polymers have very low moisture sorption, many fabrics have been made from PP/PET that have high uptake rates and capacities. One of the important factors is fabric structure and porosity (2, 3). Indeed, many studies have modeled moisture transport using analysis of transport in porous media (4-8), taking into account the role

of fiber/moisture affinity, surface modifications, pore size and shape, and the interconnectedness of pore structures.

8. The role of fiber geometry, grooves and the like, in creating capillarity for enhanced movement of moisture through fabrics has received increased attention in recent years (9). Indeed, fiber manufacturers and researchers such as Tennessee Eastman, Clemson University, and Proctor and Gamble have devoted extensive efforts to creating complex fiber structures with very complex shapes to create fine grooves and microchannels (10,11). PET and PP yarns made from these fibers have been shown to have high transport, driven by the capillary action of created by the channels.

9. A preferred, alternative means of producing highly variable fiber shapes and surfaces is the subject of the invention of the Tactix fiber. Rather than using the spinning approaches of the fibers identified above, the fibers that are the subject of the invention produce highly irregular, grooved fibers by mechanically separating a cospun fiber composed of PET/nylon blends. Other poorly miscible polymers could be used to produce similar structures. The mechanically-separated fibers are found to have very irregular shapes and to have pitting, microgrooves, pores and other surface irregularities. (Exhibit D1-D19.) Yarns made from these yarns consequently have many fine channels and pores that can promote the transport of water through the yarns as a result of capillary sorption and transport.

Comparisons to Similar Yarns

10. A sample of a PET/nylon blend fiber, of identical polymer composition, but not mechanically separated, and a sample of the split PET/nylon were analyzed at the North Carolina State University College of Textiles. The intact PET/nylon yarn was found to have a denier of about 6.7 grams/denier per filament, the split yarn had a denier of about 2-4 grams/denier/filament; and a PET comparative yarn had a denier of about 3.8 grams per denier per filament.

11. Both the PET and PET/nylon intact (unsplit) fibers were found to be circular cylinders in shape. This was confirmed by both longitudinal Scanning Electron Micrographs and by etched, cross sectional views. (Exhibit E1-E24.) The fibers from split PET/nylon fiber were quite different from the two comparisons. The split fibers were highly varied in shape and size. They ranged from relatively flat, ribbon-like structures, to grooved, irregular elongated ovals, to highly irregular triangular, oval or distorted circular shapes. These highly irregular shapes provide many grooves and pits in the fiber surface, and the yarns will pack closely. The resulting yarns and fabrics would be expected to have high porosity and many channels to create capillarity for moving water through the structures.

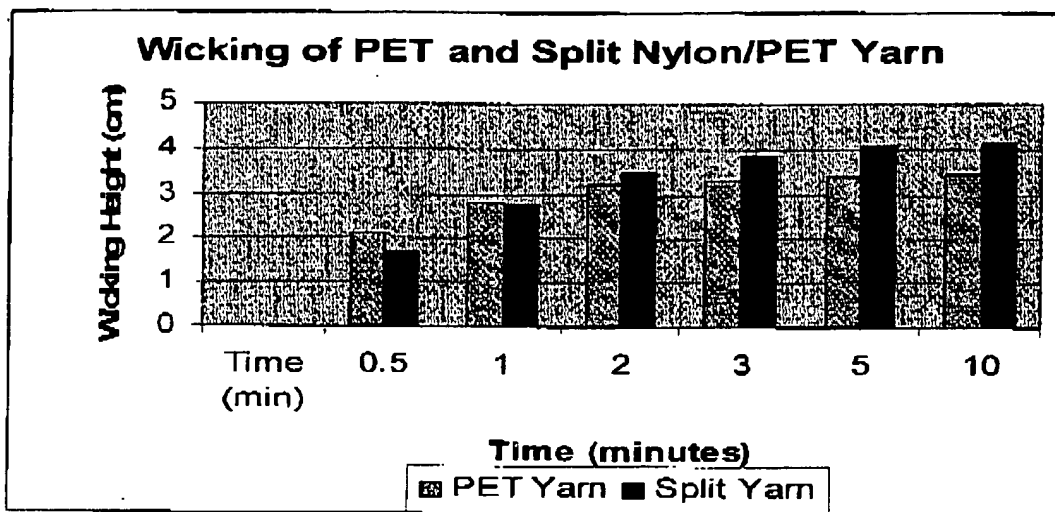
12. Laboratory test results comparing the water transport of the PET/nylon to the split PET/nylon showed that the water flow rate for the split yarn fabric was twice that of the intact PET/nylon fabric. The difference can be attributed to the difference in the fine structure of the fibers and yarns.

Wicking Results for PET and Split Nylon/PET Yarns

13. Samples of PET yarn and Nylon/PET split yarns, comparable to those described above, were tested for wicking. The yarns, as received, had no twist or heat setting. Ten specimens of each yarn, 10 inches in length, were given 100 twists, or 10 twists/inch (tpi) on a laboratory hand twister. The twisted yarns were then heat set for 30 minutes at 160 degrees C in a preheated laboratory oven. After heat setting, the samples were permitted to equilibrate in the laboratory for 36 hours (21 degrees C \pm 3 degrees C, and 65% RH \pm 10% RH). Five samples of each yarn type were then tested for wicking, by immersing the base of the yarn in a water reservoir and measuring the rate of rise in the water column resulting from wicking. The results are shown in the figure below:

Attorney Docket No 602.06
 Appln. No. 10/672,978
 Reply to Office Action dated 11/27/2006

PATENT



Neither the PET yarn nor the split yarn had a wicking finish, and both fiber types were around 2.5-5 denier per filament. The split fiber yarn clearly outperformed PET in moisture transport. This was demonstrated by performing wicking tests of yarns made from the fibers (See Figure). The wicking rate of the split fiber was 120% of the PET; and it was also 225% of the unsplit Nylon/PET. The flat yarns were twisted (10 tpi) and heat set before the wicking test. Neither fiber had wicking finish applied, so the enhancement may be attributed to the difference in the fine structure in the split fibers. The grooves, irregularities and surface pitting in the split yarn provides a greater opportunity for capillarity to promote water transport.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under Section 1001 of Title 18, U.S.C. and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Dated: January 29, 2007

Don B. Thompson, Ph.D.
 Don B. Thompson, Ph. D.

Attorney Docket No 602.06
Appln. No. 10/672,978
Reply to Office Action dated 11/27/2006

PATENT

Address correspondence to:

Michael E. Dergosits
DERGOSITS & NOAH LLP
Four Embarcadero Center, Suite 1450
San Francisco, California 94111
(415) 705-6377

Attorney Docket No. 602.06



Dr. Donald B. Thompson

Most Recent Publications:

1 Thompson, D.. (1977, November). Synthesis and properties of novel segmented polyurethanes. *Southeastern Regional Meeting of the American Chemical Society*
List All Publications

Research Interests:

Monsanto (1974-1983): Fiber spinning, polymer synthesis, static control yarns, melt rheology, process development for melt, solution and continuous spinning; gas separations technology (solution theory, transport processes, effect of contaminants on separation efficiency and high pressure stability of hollow fibers. BASF (1983-1985): Coated and bicomponent antistatic yarn development, thermal analysis, microscopic and xray analysis of PET fiber, solution rheology. Schering-Plough (1985-1998: Personal

research in polyurethane foams and processes to make molded insoles; injection molding; design of insoles based on biomechanical principles; directed group that was responsible for all insole products, textile coverings and digital of Dr. Scholl's product line, as well as laboratory and human testing insole performance. Textile Protection and Comfort Center (1998-present): Testing protective and high performance garments and equipment for comfort, function and protection; testing/certification standards development; respirator filter performance research; human comfort and physiological testing.

[Return to the top](#)

Education:

NCSU: Ph.D. Fiber and Polymer Science B.S. Chemistry B.S. Textile Chemistry

[Return to the top](#)

Organizations:

American Assoc. of Textile Chemists and Colorists American Chemical Society/Polymer Division Memphis Society of Biomechanics (through 1998) Society of Plastics Engineers (through 1998) National Fire Protective Association (Fire Fighter Turnout Committee) Life Plan Trust of North Carolina (Board) American Society for Quality (through 2002) Autism Society of NC and USA



Dr. B.S. Gupta □ Professor □ TECS □ □

Most Recent Publications:

- 1 Prahsarn, C., & Barker, R.L., & Gupta, B.S.. (2005). Moisture vapor transport behavior of polyester knit fabrics. *Textile Research Journal*, 75 (4) ,346-351.
- 2 Afshari, M., & Koteck, R., & Gupta, B.S., & Kish, M.H., & Dast, H.N.. (2005). Mechanical and structural properties of melt spun polypropylene / nylon 6 alloy filaments. *Journal of Applied Polymer Science* , 97 ,532-544.
- 3 Gupta, B.S., Ed.. (2005, June). Friction in textiles.
- 4 Warner, S., & Gupta, B. S., & King, M., Eds. (2004). Advances in biomedical textiles and healthcare products.
- 5 Gupta, B.S., & Sehgal, K.C.. (2003). Fundamental and practical aspects of adhesion in binder and coating applications. *INTC*

List All Publications

Courses:

Educational activities have included development and offering of undergraduate and graduate courses that have dealt with physical, mechanical and structural properties of textile materials. Additionally, he has taught the product design courses to the seniors in the Materials Science Program.

- ☐ The courses currently offered include:
- ☐ TE 201: Textile Engineering Science
- ☐ TMS 211: Introduction to Fiber Science
- ☐ TMS 761: Mechanical and Rheological Properties of Fibrous Materials
- ☐ TMS 762: Physical Properties of Fiber Forming Polymers, Fibers, and Fibrous Structures

[Return to the top](#)

Research Interests:

General research emphasis has been on characterizing, understanding and modeling structural, physical and mechanical properties of fibers and fibrous assemblies. Major areas, in which his research has been focused during the past several years, are as follows:

- Frictional characteristics of fibrous materials: structural model, experimental studies in fibers, yarns and fabrics, surgical sutures, hair fibers, impact on fabric handle. Currently editing the book, Friction in Textiles, Woodhead

Publishing, Inc, Cambridge.

Absorbent structures and absorption phenomena: structural models, test methods, studies involving fibers, fluids and fabric structure as variables, behavior of super-absorbent materials, personal hygiene products, design for optimum performance. Wrote/co-edited the book, Absorbent

Technology, Elsevier, Amsterdam, 2002.

Biomedical textiles: knot security and strength in sutures, secure knot model, tying devices, studies in regular and ophthalmic sutures, preparation of small diameter compliant arterial grafts using weaving technology and both non-degradable and degradable materials, prosthetic ligaments from braided structures, wound dressings using absorbable healing polymers.

Porosity: structural models for pore size and its distribution in nonwovens and woven/knitted fabrics, experimental methods, impact on absorbency and fabric comfort.

Surface energetics: dynamic contact angle device, advancing and receding contact angles, polar and non-polar energies, work of adhesion, experimental studies in cellulosic and non-cellulosic fibers and films.

[Return to the top](#)

Education:

Technological Inst. of Textiles,
Haryana, India
Technology

B. Sc (Text) 1958 Textile

University of Manchester Inst. of
Sci. and Tech, England
Physics
Return to the top

Ph.D 1963 Textile

Organizations:

Exchange Scientist, N. C. State Univ., 1963-1966
Fellow, Textile Institute, 1977
Best Paper Award, Society of Cosmetic Chemists, 1984
Fulbright Lecture Award to Fiber and Textile Institutes, India, May - August, 1985
Steering Committee, Technical Association of Pulp and Paper Ind., 1989
Best Paper Award, Quality Assurance, Nonwovens Conference, TAPPI, 1994
TAPPI Nonwovens Division Technical Award and Mark Hollingsworth Prize, 2004
Return to the top

Biography:

Born and raised in Delhi, India, he completed his high school from the Punjab University and I.SC. from the Uttar Pradesh University. He pursued Bachelor of Science in Textile Technology from the Technological Institute of Textiles of the Punjab University. He joined the Delhi Cloth Mills as a trainee and then

served as a supervisor at the Modi Textile Mills. For graduate education, he proceeded to the University of Manchester Institute of Science and Technology, Manchester, England, and completed his Ph. D. degree in Textile Physics under the direction of Professor J. W. S. Hearle. He came to the College of Textiles, North Carolina State University, Raleigh, North Carolina, USA, as a visiting scientist. He was offered a faculty position and is currently serving as a professor in the Department of Textile Engineering, Chemistry, and Science. During the summer of 1985, he received a Fullbright Professorship grant to lecture at the Indian Institute of Technology, New Delhi, and The Maharaja Sayajirao University, Vadodra, India. During 1983 to 1997, he served as the Associate Head of the Textile Materials Science and the Textile Engineering, Chemistry, and Science Departments.

References

1. Yasuda, T.; Miyama, M.; and Yaduda, H. "Dynamic water vapor and heat transport through layered fabrics. Part II. Effects of the chemical nature of fibers." *Textile Research Journal*, 62 (4), April, 1992, p. 227-235.
2. Prahsarn, C.; Barker, R.L.; and Gupta, B. S. "Moisture vapor transport behavior of polyester knit fabrics." *Textile Research Journal*, 75 (4), April, 2005, p. 346-351.
3. Shyr, Tien-Wei, Yang; Shun-Tung; Jou, Chi-Hsuing; and Yao, Shin0Chuan. *World Conference of the Textile Institute, Proceedings, v.2, Nieches in the World of Textiles*, 1997, p. 376-378.
4. Harper, R. J. Jr.; Bruno, J.S.; Blanchard, E.J.; and Gautreaus, G.A. "Moisture-related Properties of Cotton-Polyester Fabrics," *Textile Research Journal*, 46 (2), February, 1976, p.82-90.
5. Liu, L.; and Liu, M. "Effect of fabric surface properties on moisture transport properties." *Qingdao Daxue Xuebao (Gonggheng Jishuban)/Journal of Qingdao University (Engineering Technology Division)*, 16 (2), June, 2001, p. 24-27.
6. Ghali, K.; Jones, B.; And Tracy, J. "Modeling moisture transfer in fabrics." *Experimental Thermal and Fluid Science*, 9 (3), Oct. 1994, p. 330-336.
7. Haghi, A.K. "Transport phenomena in porous media: A review." *Theoretical Foundations in Chemical Engineering*, 40 (1), January, 2006, p. 14-26.
8. Nguyen, H.V.; and Durso, D.F. "Absorption of water by fiber webs; and illustration of diffusion transport." *Tappi Journal*, 66 (12), December, 1983, p. 76-79.
9. Matsudaira, M.; and Kondo, Y. "Effect of a grooved hollow in a fiber on fabric moisture and heat transport properties." *Journal of the Textile Institute, Part 1: Fiber Science and Textile Technology*, 87 (3), 1996, p. 409-416.
10. Vaughn, Edward A.; and Carman, Breng G. "Expanded Surface Area Fibers: A Means for Medical Product Enhancement." *Journal of Industrial Textiles*, 30 (4), April, 2001, p. 303-310.
11. Goswami, B. C.; and Ellison, M. S., "New capillary surface fibers." *Man-Made Fiber Year Book*, August, 2002, p. 34-38.

127234356789101112131415161718192021222324252627282930313233343536373839404142434445464748495051525354555657585960616263646566676869707172737475767778798081828384858687888990919293949596979899100

7 4 HV

6 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

Files

Beam

Alignment

Image Adj.

Display Mode

Proto Cond

Data Display

Vacuum Mode

LOUT

Condition

High Voltage

6 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

Photo

A. E. C.

Focus (D)

Focus (F)

Stigmator

I.S. Reset

60Pa 05-JAN-07 WD15mm 20.0kV 1.0k 50um

Image Size: 1000x1000 Image Name: | Export |

2 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

File

File

File

File

File

File

File

File

File

File

File

File

File

File

File

File

File

File

File

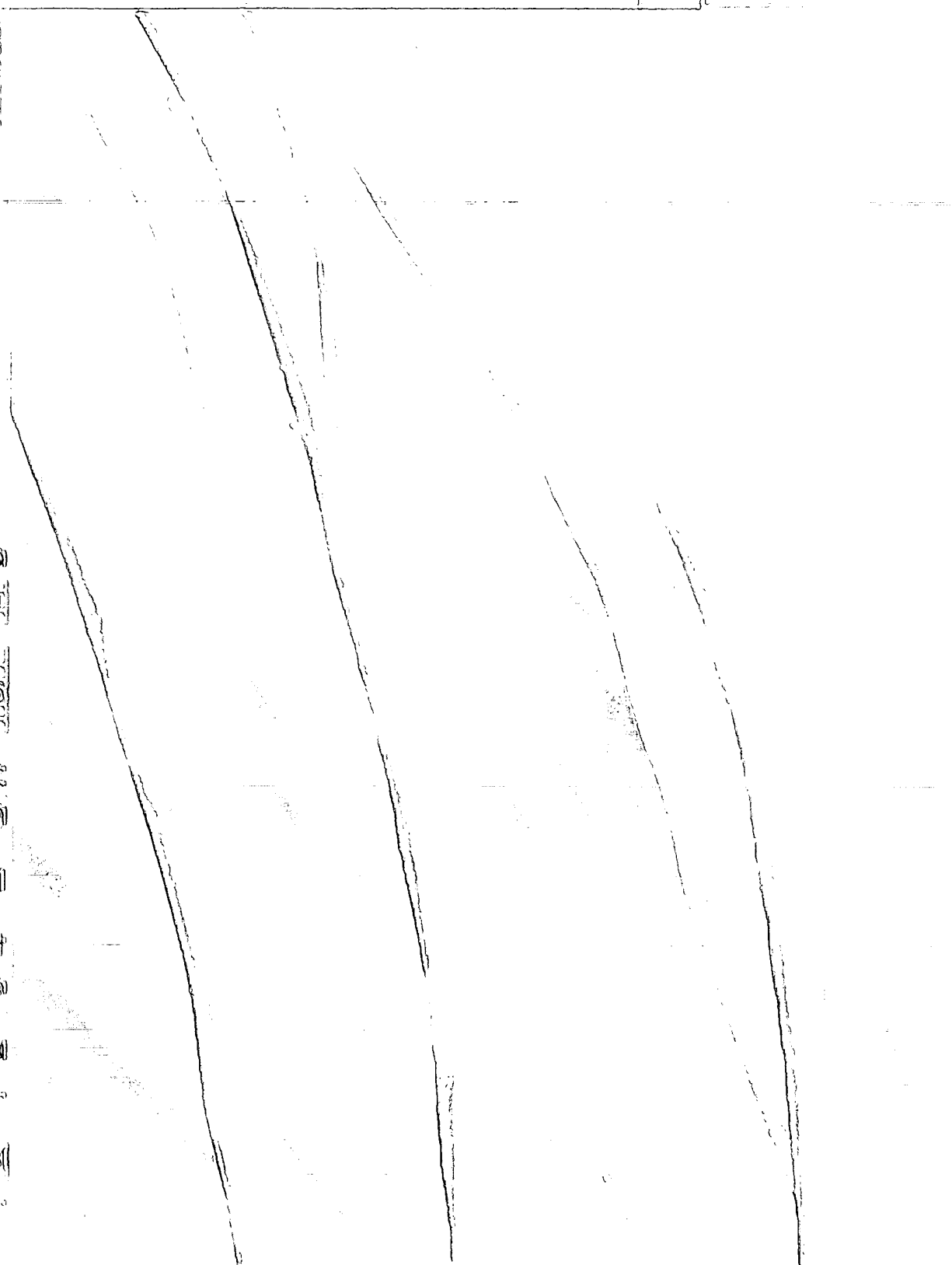
Exhibit D2

Files	Beam	Alignment	Image Adj.	Display Mode	Photo Cond	Data Display	Vacuum Mode	CU	Condition	X-Ray Mode
Focus (F)	Focus (F)	Stigmation	I. S. Reset							

Photo Recordings in Progress	Exhibit D3
------------------------------	------------

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150



151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200

Photo Recording In Progress

Exhibit D4

Files
E. Beam
Alignment
Image Adj.
Display Mode
Photo Cord
Data Display
Vacuum Mode
LUT
Condition
X-Ray Mode

Exhibit, Beam
E. Beam
A. B. C.
Focus (G)
Focus (F)
Stigmator
I.S. Reset

[illegible]

○

卷之五

Algeria

Image

Library

BOOK

Table 1

Vacuum Pledge

III

Corollia

Index

۴
 ۵
 ۶
 ۷
 ۸
 ۹
 ۱۰
 ۱۱
 ۱۲
 ۱۳
 ۱۴
 ۱۵
 ۱۶
 ۱۷
 ۱۸
 ۱۹
 ۲۰
 ۲۱
 ۲۲
 ۲۳
 ۲۴
 ۲۵
 ۲۶
 ۲۷
 ۲۸
 ۲۹
 ۳۰
 ۳۱
 ۳۲
 ۳۳
 ۳۴
 ۳۵
 ۳۶
 ۳۷
 ۳۸
 ۳۹
 ۴۰
 ۴۱
 ۴۲
 ۴۳
 ۴۴
 ۴۵
 ۴۶
 ۴۷
 ۴۸
 ۴۹
 ۵۰
 ۵۱
 ۵۲
 ۵۳
 ۵۴
 ۵۵
 ۵۶
 ۵۷
 ۵۸
 ۵۹
 ۶۰
 ۶۱
 ۶۲
 ۶۳
 ۶۴
 ۶۵
 ۶۶
 ۶۷
 ۶۸
 ۶۹
 ۷۰
 ۷۱
 ۷۲
 ۷۳
 ۷۴
 ۷۵
 ۷۶
 ۷۷
 ۷۸
 ۷۹
 ۸۰
 ۸۱
 ۸۲
 ۸۳
 ۸۴
 ۸۵
 ۸۶
 ۸۷
 ۸۸
 ۸۹
 ۹۰
 ۹۱
 ۹۲
 ۹۳
 ۹۴
 ۹۵
 ۹۶
 ۹۷
 ۹۸
 ۹۹
 ۱۰۰
 ۱۰۱
 ۱۰۲
 ۱۰۳
 ۱۰۴
 ۱۰۵
 ۱۰۶
 ۱۰۷
 ۱۰۸
 ۱۰۹
 ۱۱۰
 ۱۱۱
 ۱۱۲
 ۱۱۳
 ۱۱۴
 ۱۱۵
 ۱۱۶
 ۱۱۷
 ۱۱۸
 ۱۱۹
 ۱۲۰
 ۱۲۱
 ۱۲۲
 ۱۲۳
 ۱۲۴
 ۱۲۵
 ۱۲۶
 ۱۲۷
 ۱۲۸
 ۱۲۹
 ۱۳۰
 ۱۳۱
 ۱۳۲
 ۱۳۳
 ۱۳۴
 ۱۳۵
 ۱۳۶
 ۱۳۷
 ۱۳۸
 ۱۳۹
 ۱۴۰
 ۱۴۱
 ۱۴۲
 ۱۴۳
 ۱۴۴
 ۱۴۵
 ۱۴۶
 ۱۴۷
 ۱۴۸
 ۱۴۹
 ۱۵۰
 ۱۵۱
 ۱۵۲
 ۱۵۳
 ۱۵۴
 ۱۵۵
 ۱۵۶
 ۱۵۷
 ۱۵۸
 ۱۵۹
 ۱۶۰
 ۱۶۱
 ۱۶۲
 ۱۶۳
 ۱۶۴
 ۱۶۵
 ۱۶۶
 ۱۶۷
 ۱۶۸
 ۱۶۹
 ۱۷۰
 ۱۷۱
 ۱۷۲
 ۱۷۳
 ۱۷۴
 ۱۷۵
 ۱۷۶
 ۱۷۷
 ۱۷۸
 ۱۷۹
 ۱۸۰
 ۱۸۱
 ۱۸۲
 ۱۸۳
 ۱۸۴
 ۱۸۵
 ۱۸۶
 ۱۸۷
 ۱۸۸
 ۱۸۹
 ۱۹۰
 ۱۹۱
 ۱۹۲
 ۱۹۳
 ۱۹۴
 ۱۹۵
 ۱۹۶
 ۱۹۷
 ۱۹۸
 ۱۹۹
 ۲۰۰
 ۲۰۱
 ۲۰۲
 ۲۰۳
 ۲۰۴
 ۲۰۵
 ۲۰۶
 ۲۰۷
 ۲۰۸
 ۲۰۹
 ۲۱۰
 ۲۱۱
 ۲۱۲
 ۲۱۳
 ۲۱۴
 ۲۱۵
 ۲۱۶
 ۲۱۷
 ۲۱۸
 ۲۱۹
 ۲۲۰
 ۲۲۱
 ۲۲۲
 ۲۲۳
 ۲۲۴
 ۲۲۵
 ۲۲۶
 ۲۲۷
 ۲۲۸
 ۲۲۹
 ۲۳۰
 ۲۳۱
 ۲۳۲
 ۲۳۳
 ۲۳۴
 ۲۳۵
 ۲۳۶
 ۲۳۷
 ۲۳۸
 ۲۳۹
 ۲۴۰
 ۲۴۱
 ۲۴۲
 ۲۴۳
 ۲۴۴
 ۲۴۵
 ۲۴۶
 ۲۴۷
 ۲۴۸
 ۲۴۹
 ۲۵۰
 ۲۵۱
 ۲۵۲
 ۲۵۳
 ۲۵۴
 ۲۵۵
 ۲۵۶
 ۲۵۷
 ۲۵۸
 ۲۵۹
 ۲۶۰
 ۲۶۱
 ۲۶۲
 ۲۶۳
 ۲۶۴
 ۲۶۵
 ۲۶۶
 ۲۶۷
 ۲۶۸
 ۲۶۹
 ۲۷۰
 ۲۷۱
 ۲۷۲
 ۲۷۳
 ۲۷۴
 ۲۷۵
 ۲۷۶
 ۲۷۷
 ۲۷۸
 ۲۷۹
 ۲۸۰
 ۲۸۱
 ۲۸۲
 ۲۸۳
 ۲۸۴
 ۲۸۵
 ۲۸۶
 ۲۸۷
 ۲۸۸
 ۲۸۹
 ۲۹۰
 ۲۹۱
 ۲۹۲
 ۲۹۳
 ۲۹۴
 ۲۹۵
 ۲۹۶
 ۲۹۷
 ۲۹۸
 ۲۹۹
 ۳۰۰
 ۳۰۱
 ۳۰۲
 ۳۰۳
 ۳۰۴
 ۳۰۵
 ۳۰۶
 ۳۰۷
 ۳۰۸
 ۳۰۹
 ۳۱۰
 ۳۱۱
 ۳۱۲
 ۳۱۳
 ۳۱۴
 ۳۱۵
 ۳۱۶
 ۳۱۷
 ۳۱۸
 ۳۱۹
 ۳۲۰
 ۳۲۱
 ۳۲۲
 ۳۲۳
 ۳۲۴
 ۳۲۵
 ۳۲۶
 ۳۲۷
 ۳۲۸
 ۳۲۹
 ۳۳۰
 ۳۳۱
 ۳۳۲
 ۳۳۳
 ۳۳۴
 ۳۳۵
 ۳۳۶
 ۳۳۷
 ۳۳۸
 ۳۳۹
 ۳۴۰
 ۳۴۱
 ۳۴۲
 ۳۴۳
 ۳۴۴
 ۳۴۵
 ۳۴۶
 ۳۴۷
 ۳۴۸
 ۳۴۹
 ۳۵۰
 ۳۵۱
 ۳۵۲
 ۳۵۳
 ۳۵۴
 ۳۵۵
 ۳۵۶
 ۳۵۷
 ۳۵۸
 ۳۵۹
 ۳۶۰
 ۳۶۱
 ۳۶۲
 ۳۶۳
 ۳۶۴
 ۳۶۵
 ۳۶۶
 ۳۶۷
 ۳۶۸
 ۳۶۹
 ۳۷۰
 ۳۷۱
 ۳۷۲
 ۳۷۳
 ۳۷۴
 ۳۷۵
 ۳۷۶
 ۳۷۷
 ۳۷۸
 ۳۷۹
 ۳۸۰
 ۳۸۱
 ۳۸۲
 ۳۸۳
 ۳۸۴
 ۳۸۵
 ۳۸۶
 ۳۸۷
 ۳۸۸
 ۳۸۹
 ۳۹۰
 ۳۹۱
 ۳۹۲
 ۳۹۳
 ۳۹

الان
الان
الان
الان

۱۰۰

五十二

1. 1940-1941

St. Ignace

۱۰۰
 ۱۰۱
 ۱۰۲
 ۱۰۳
 ۱۰۴
 ۱۰۵
 ۱۰۶
 ۱۰۷
 ۱۰۸
 ۱۰۹
 ۱۱۰
 ۱۱۱
 ۱۱۲
 ۱۱۳
 ۱۱۴
 ۱۱۵
 ۱۱۶
 ۱۱۷
 ۱۱۸
 ۱۱۹
 ۱۲۰
 ۱۲۱
 ۱۲۲
 ۱۲۳
 ۱۲۴
 ۱۲۵
 ۱۲۶
 ۱۲۷
 ۱۲۸
 ۱۲۹
 ۱۳۰
 ۱۳۱
 ۱۳۲
 ۱۳۳
 ۱۳۴
 ۱۳۵
 ۱۳۶
 ۱۳۷
 ۱۳۸
 ۱۳۹
 ۱۴۰
 ۱۴۱
 ۱۴۲
 ۱۴۳
 ۱۴۴
 ۱۴۵
 ۱۴۶
 ۱۴۷
 ۱۴۸
 ۱۴۹
 ۱۵۰
 ۱۵۱
 ۱۵۲
 ۱۵۳
 ۱۵۴
 ۱۵۵
 ۱۵۶
 ۱۵۷
 ۱۵۸
 ۱۵۹
 ۱۶۰
 ۱۶۱
 ۱۶۲
 ۱۶۳
 ۱۶۴
 ۱۶۵
 ۱۶۶
 ۱۶۷
 ۱۶۸
 ۱۶۹
 ۱۷۰
 ۱۷۱
 ۱۷۲
 ۱۷۳
 ۱۷۴
 ۱۷۵
 ۱۷۶
 ۱۷۷
 ۱۷۸
 ۱۷۹
 ۱۸۰
 ۱۸۱
 ۱۸۲
 ۱۸۳
 ۱۸۴
 ۱۸۵
 ۱۸۶
 ۱۸۷
 ۱۸۸
 ۱۸۹
 ۱۹۰
 ۱۹۱
 ۱۹۲
 ۱۹۳
 ۱۹۴
 ۱۹۵
 ۱۹۶
 ۱۹۷
 ۱۹۸
 ۱۹۹
 ۲۰۰

2020年12月25日
 星期五
 2020年12月25日

[illegible]Exhibit DS

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

File

Beam

Alignment

Image Adj.

Display Mode

Photo Cord

Data Display

Vacuum Mode

Condition

X-Ray Mode

A. R. C.

Focus (C)

Focus (F)

Stigmator

I.S. Reset

05-JAN-07 11:24am 5.0KV 150um

Exhibit D7

05-JAN-07 05:04:50 HV

- Files
- Beam
- Alignment
- Image Adj.
- Display Mode
- Photo Cord
- Data Display
- Vacuum Mode
- LUT
- Condition
- X-Ray Mode

- Focus (F)
- Stigmator
- Focus (F)
- Stigmator
- L.S. Reset

05-JAN-07 05:04:50 HV

Photo Recording in Progress

Exhibit D8

05 JAN 07

5.0KV HL OK

5.0KV HL OK

05-JAN-07

5.0KV HL OK

Photo recorded in process

Exhibit D9

Image
Beam
Align
Image Adj.
Display Mode
Proto Cond
Data Display
Vacuum Mode
LUT
Correction
X-Ray Mode

Image
Beam
Align
Image Adj.
Display Mode
Proto Cond
Data Display
Vacuum Mode
LUT
Correction
X-Ray Mode

20240105 05:00:00

05:00:00

Beam
Align
Image Adj.
Display Mode
Photo Cord
Data Display
Vacuum Mode
LUT
Condition
X-Ray Mode

Exposure
Time
kVp
mA
Focus (C)
Focus (F)
Collimator
T.S. Reset

05-JAN-07 05:00:00 5.0kV 22.0k 20.0mm

Record in Progress

Exhibit D10

[illegible][illegible]

۱۰۰

١٠٠

संस्कृत-विश्वकोशः

1029

Library

COLORED

Liberty

Yakum Kofe

II

Collection

THE
LIBRARY

۱۰
 ۹
 ۸
 ۷
 ۶
 ۵
 ۴
 ۳
 ۲
 ۱

()
 ()
 ()
 ()
 ()

١٠٠

五
三
二
一

1524
20
21
22
23
24

Stigmar

۱۰۰
 ۱۰۱
 ۱۰۲
 ۱۰۳
 ۱۰۴
 ۱۰۵
 ۱۰۶
 ۱۰۷
 ۱۰۸
 ۱۰۹
 ۱۱۰
 ۱۱۱
 ۱۱۲
 ۱۱۳
 ۱۱۴
 ۱۱۵
 ۱۱۶
 ۱۱۷
 ۱۱۸
 ۱۱۹
 ۱۲۰
 ۱۲۱
 ۱۲۲
 ۱۲۳
 ۱۲۴
 ۱۲۵
 ۱۲۶
 ۱۲۷
 ۱۲۸
 ۱۲۹
 ۱۳۰
 ۱۳۱
 ۱۳۲
 ۱۳۳
 ۱۳۴
 ۱۳۵
 ۱۳۶
 ۱۳۷
 ۱۳۸
 ۱۳۹
 ۱۴۰
 ۱۴۱
 ۱۴۲
 ۱۴۳
 ۱۴۴
 ۱۴۵
 ۱۴۶
 ۱۴۷
 ۱۴۸
 ۱۴۹
 ۱۵۰
 ۱۵۱
 ۱۵۲
 ۱۵۳
 ۱۵۴
 ۱۵۵
 ۱۵۶
 ۱۵۷
 ۱۵۸
 ۱۵۹
 ۱۶۰
 ۱۶۱
 ۱۶۲
 ۱۶۳
 ۱۶۴
 ۱۶۵
 ۱۶۶
 ۱۶۷
 ۱۶۸
 ۱۶۹
 ۱۷۰
 ۱۷۱
 ۱۷۲
 ۱۷۳
 ۱۷۴
 ۱۷۵
 ۱۷۶
 ۱۷۷
 ۱۷۸
 ۱۷۹
 ۱۸۰
 ۱۸۱
 ۱۸۲
 ۱۸۳
 ۱۸۴
 ۱۸۵
 ۱۸۶
 ۱۸۷
 ۱۸۸
 ۱۸۹
 ۱۹۰
 ۱۹۱
 ۱۹۲
 ۱۹۳
 ۱۹۴
 ۱۹۵
 ۱۹۶
 ۱۹۷
 ۱۹۸
 ۱۹۹
 ۲۰۰

WDI2mm 5.0k±1.0k 50.2m

100
 101
 102
 103
 104
 105
 106
 107
 108
 109
 110
 111
 112
 113
 114
 115
 116
 117
 118
 119
 120
 121
 122
 123
 124
 125
 126
 127
 128
 129
 130
 131
 132
 133
 134
 135
 136
 137
 138
 139
 140
 141
 142
 143
 144
 145
 146
 147
 148
 149
 150
 151
 152
 153
 154
 155
 156
 157
 158
 159
 160
 161
 162
 163
 164
 165
 166
 167
 168
 169
 170
 171
 172
 173
 174
 175
 176
 177
 178
 179
 180
 181
 182
 183
 184
 185
 186
 187
 188
 189
 190
 191
 192
 193
 194
 195
 196
 197
 198
 199
 200

Exhibit D11

05 JAN 08 12:00 PM 5.000 100mm

05 JAN 08 12:00 PM

Files
E Beam
Amplifier
Image Adj.
Display Mode
Photo Cond
Data Display
Vacuum Mode
LUT
Condition
X-Ray Mode

05 JAN 08 12:00 PM
E Beam
A. E. C.
Focus (C)
Focus (F)
Stigmator
I. S. Reset

05 JAN 08 12:00 PM 5.000 100mm

05 JAN 08 12:00 PM 5.000 100mm
I S Reset
Exhibit D12

2 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

× **Test Menu** ×

- Files
- Read
- Write
- Image Adj.
- Display Mode
- Photo Cord
- Data Display
- Vacuum Mode
- LUT
- Condition
- X-Ray Mode

× **Test Menu** ×

- Photo
- A.B.C.
- Focus (M)
- Focus (F)
- Stigmator
- I.C. Reset

602a 05-190-017

Exhibit D15

Exhibit 116

Files

Beam

Image adj.

Display mode

Photo Cond

Data Display

Vacuum mode

CU

Condition

X-Ray mode

Exhibit 116

Photo

A. B. C.

Focus (C)

Focus (F)

Stigmator

T. S. Reset

6028 (15-JAN-08) 11:50:20 AM 20.0KV 5.000 100.0um

Exhibit 116

Files

E. Res.

Image

Image adj.

Display mode

Photo Cond

Data Display

Vacuum Mode

LUT

Condition

X-Ray Mode

Standard, Res.

Photo

A. B. C.

Focus (C)

Focus (F)

Stigmator

I.S. Reset

602a 15-JAN-07 20:04:41.0K 50/50m

Exhibit D17

2025-01-07 05:15:00 20.0KV X400 100um

Files
Image
Image Adj.
Display Mode
Photo Cord
Data Display
Vacuum Mode
EUT
Condition
X-Ray Mode

Photo
S.E.C.
Focus (C)
Focus (F)
Stigmator
I.S. Reset

60Pa 05-JAN-07 05:15:00 20.0KV X400 100um

Charge Sheet 1 Charge Sheet 1 Exhibit D19

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

→ HV

Main Menu ×

- Files
- E. Beam
- Alignment
- Image Adj.
- Display Mode
- Photo Cond
- Data Display
- Vacuum Mode
- LUT
- Condition
- X-Ray Mode

Stand. Menu ×

- Photo
- A. B. C.
- Focus (C)
- Focus (F)
- Stigmator
- I.S. Reset

13-DEC-06 WD24mm 5.0kV x500 100µm

Exhibit E1

Image Shift X Image Shift Y

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 104








三

2021

Alignment

Three

Dislay Mode

Blackboard

Estadística

Yesseri

III

Confession

— 1 —











五

SHIRAZ

卷一百一十五

Signature

T & DRAFT

13-DEC-66 4D25mm 5.0KV x500 100um

Exhibit E2

1 2 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB

SW

□

3 4

1 2

1 2

1 2

→ HV

AB







SW

□

13-DEC-06

WD24mm 5.0kV x5.0k 10.2um

Exhibit E4

X
၂၀၁၆
၂၀၁၇
၂၀၁၈

三

Levi

Argument

Large Addi

Display Mode

Photo Card

Index

Vacuum Mode

III

Condition

RAY-FILE

Standard Ward X

2000

DISC

STOCK

INDEX

Exhibit ES


13-DEC-66

WD25mm 5.0kV 4.5kV 10.5kV

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 104



 NATIONAL BUREAU OF STANDARDS



100

1. *Journal of the American Medical Association*, 1997; 277: 1033-1038.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

Files
E. Beam
Alignment
Image Adj.
Display Mode
Photo Cond
Data Display
Vacuum Mode
LUT
Condition
X-Ray Mode

Standard Menu
Focus
A. B. C.
Focus (C)
Focus (F)
Stigmator
I. S. Reset

13-DEC-86 AD24m 5.0m 2.0k 20um

Exhibit E7

1 2 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

Main Menu

- Files
- E. Beam
- Alignment
- Image Adj.
- Display Mode
- Photo Cond
- Data Display
- Vacuum Mode
- LUT
- Condition
- X-Ray Mode

Standard Menu

- Print
- A. B. C.
- Focus (C)
- Focus (F)
- Stigmator
- I.S. Reset

13-DEC-16 10:24:10 100.000

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

Files
E. Beam
Alignment
Image Adj.
Display Mode
Photo Cond
Data Display
Vacuum Mode
LUT
Condition
X-Ray Mode

Standard, Menu X
Phos
A. B. C.
Focus (C)
Focus (F)
Stigmator
I. S. Reset

13-DEC-86 10:24:00 5.0KV 5500 100um

Image Scans 1 Exhnt E9

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

HV

Main Menu

- Files
- E. Beam
- Alignment
- Image Adj.
- Display Mode
- Photo Cond
- Data Display
- Vacuum Mode
- LUT
- Condition
- X-Ray Mode

Stand, Menu

- Print
- A. B. C.
- Focus (C)
- Focus (F)
- Stigmator
- I. S. Reset

13-DEC-06 AD24mm 5.0kV x500 100µm

Image Shift X Image Shift Y | Exhibit E10

Main Menu X

Files

E. Beam

Alignment

Image Adj.

Display Mode

Photo Cond

Data Display

Vacuum Mode

LUT

Condition

X-Ray Mode

Standard, Menu X

Prints

A. B. C.

Focus (C)

Focus (F)

Stigmator

I. S. Reset

1 2 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

Menu X

- Files
- E. Beam
- Alignment
- Image Adj.
- Display Mode
- Photo Cond
- Data Display
- Vacuum Mode
- LUT
- Condition
- X-Ray Mode

Standard Menu X

- Photo
- A. B. C.
- Focus (C)
- Focus (F)
- Stigmator
- I. S. Reset

13-DEC-16 10:24:11 5:04:50 100.00

Image Size 1 | Exhibit E12

ॐ नमो भगवते वासुदेवाय

I.S. Reset

1 2 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

Files	Star, West X
E. Beam	
Alignent	
Image Adj.	
Display Mode	
Photo Cond	
Data Display	
Vacuum Mode	
LUT	
Condition	
X-Ray Mode	
Star, West X	
Photo	
A. B. C.	
Focus (C)	
Focus (F)	
Stigmator	
I. S. Reset	

13-DEC-06 HD24mm 5.0KV X3.0K 10um

Exhibit E15

1 2 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

Main Menu

Files

E. Beam

Alignment

Image Adj.

Display Mode

Photo Cond

Data Display

Vacuum Mode

LUT

Condition

X-Ray Mode

Standard Menu

Photo

A. B. C.

Focus (C)

Focus (F)

Stigmator

I.S. Reset

50Pa 02-JAN-07 AD19mm 20.0kV x2.0k 20µm

12 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

Standard Menu

- Files
- E. Beam
- Alignment
- Image Adj.
- Display Mode
- Photo Cord
- Data Display
- Vacuum Mode
- LUT
- Condition
- X-Ray Mode

- Standard Menu
- Photo
- H.B.C.
- Focus (C)
- Focus (F)
- Stigmator
- I.S. Reset

50Pa 02-JAN-07 AD19mm 20.0kV x2.0k 20µm

Photo Recordings In Progress

EXLATE

1 2 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

Files

E. Beam

Alignment

Image Adj.

Display Mode

Photo Cond

Data Display

Accuracy Modes

LUT

Condition

X-Ray Mode

Start, Wait

Photo

A. B. C.

Focus (C)

Focus (F)

Stigmator

L. S. Reset

1002-14-DEC-06 10:00:00 20.0K 20.5K 20.5K

Exhibit E10

12 1 2 3 4 5 6 7 8 9 10 11 12 HV

Files

L. Beam

Alignment

Image Adj.

Display Mode

Photo Cord

Data Display

Vacuum Mode

LUT

Condition

X-Ray Mode

Start, Menu

Photo

H.B. C.

Focus (C)

Focus (F)

Stigmator

L.S. Reset

50Pa 02-JAN-07 WD19mm 20.0kV x2.0k 20µm

Photo Recording In Progress

Exhibit E19

1 2 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

Files

E. Beam

Alignment

Image Adj.

Display Mode

Photo Cond

Data Display

Vacuum Mode

LOT

Condition

X-Ray Mode

Stand, Wed

Photo

A. B. C.

Focus (C)

Focus (F)

Stigmator

I. S. Reset

50Pa 02-JAN-07 WD19mm 20.0kV x2.0k 20um

1 Exch 621

1 Entry E22

WIRING DIAGRAM

Page 1 of 1

Reset

Stigmator

(E) Focus

(C) Focus

A. B. C

Photo

Useful

X-Ray Mode

Condition

LT

Self Monitor

Data Display

Photo Cond

Display Mode

Image Adj.

Alignment

E. Beam

Files

Useful

1-1-1

1-1-1

X 1122m 2122m 1122m

三

Well

Alignment

Image Adj.

Display Mode

Photo Cord

Data Display

Vacuum Mode

LI

Condition

Rocky-Moore

X
T
T
C
S

السلامة

三

OSTEOL

STOCK

Stimulator

Reset

WD19mm 20.0V 20.0K 20.0mm

உதயசுந்தரி

Exhibit E24

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☒ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☒ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☒ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.